

AMENDMENTS TO THE CLAIMS

(IN FORMAT COMPLIANT WITH THE REVISED 37 CFR 1.121)

1. (CURRENTLY AMENDED) A crosspoint switch comprising:  
a plurality of input buses, input signals on the input  
buses being driven at a low swing;

a plurality of output buses, output signals on the output  
5 buses being driven at the low swing; and

a plurality of crosspoints, each comprising (i) a decoder  
configured to generate a first clock signal ~~an amplifier~~ and (ii)  
a repeater for selectively passing a signal from a low swing input  
bus to a low swing output bus generating a respective one of the  
10 output signals in response to both a respective one of the input  
signals and the first clock signal.

2. (CANCELED)

3. (CURRENTLY AMENDED) A The crosspoint switch as  
claimed in claim 3 1, wherein each ~~crosspoint~~ repeater comprises:  
an amplifier configured to generate an intermediate  
signal in response to both the respective input signal and the  
5 first clock signal; and

a low swing driver circuit configured to generate the  
respective output signal in response to the intermediate signal.

4. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 3, wherein the amplifier is a clocked regenerative amplifier having a gain using a positive feedback.

5. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 4 3, further comprising a timing circuit which controls timing of the crosspoint switch from a second clock signal, the timing circuit including a delay, ~~the timing of which~~ tracks a timing variations variation in the low swing driver circuit.

6. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 3 1, wherein the input signals on the input buses and the output signals on the output buses are differential signals.

7. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 6, further comprising: ~~wherein low swing~~  
a plurality of input drivers which drive the input buses;  
~~and the low swing~~  
a plurality of output drivers at the crosspoints  
connected to the output buses, wherein the input drivers and the  
output drivers are push-pull driver circuits, each of which drives

a pair of differential lines, one line driven high while the other line is pulled low.

8. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 1, further comprising a plurality of amplifiers which amplify the output signals on the output buses, the amplifiers being clocked regenerative amplifiers having a gain using a positive feedback.

9. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 8, wherein the input signals on the input buses and the output signals on the output buses are differential signals.

10. (CURRENTLY AMENDED) A crosspoint switch comprising:  
~~a plurality of input buses,~~  
a plurality of low swing drivers which drive a plurality of input signals to ~~the~~ a plurality of input buses, each low swing driver driving a first pair of differential lines, one line driven high while the other line is pulled low;  
a plurality of output buses carrying a plurality of output signals on a second pair of differential lines;

5  
10     a plurality of precharge devices, each configured to  
precharge a respective one of the output buses to a mid-swing level  
by connecting the second pair of differential lines together; and

15     a plurality of crosspoints, each selectively ~~passing a~~  
~~signal from an input bus to an output bus~~ generating a respective  
one of a plurality of output signals in response to a respective  
one of the input signals, each crosspoint comprising (i) an  
amplifier which amplifies ~~a signal on an input bus~~ the respective  
input signal to generate an intermediate signal and (ii) a low  
swing driver which drives ~~a low swing~~ the respective output signal  
on ~~an output bus~~ one of the output buses in response to the  
20 intermediate signal, and

~~———— a plurality of output amplifiers which sense the signals~~  
~~on the output buses.~~

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11. (CURRENTLY AMENDED) A The crosspoint switch as  
claimed in claim 10, further comprising a timing circuit which  
controls timing of the ~~crosspoint switch~~ precharge devices and the  
crosspoints from a clock, the timing circuit including a delay, ~~the~~  
5 ~~timing of~~ which tracks timing variations in the low swing driver  
20 circuit.

12. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim ~~11~~ 10, wherein the amplifier is a clocked regenerative amplifier comprising:

5 a first amplifier configured to generate a first half of the intermediate signal in response to both halves of the respective input signal; and

a second amplifier configured to generate a second half of the intermediate signal in response to both halves of the respective input signal.

13. (CURRENTLY AMENDED) A method of connecting signals from a plurality of input buses to a plurality of output buses comprising:

5 driving the signals unidirectionally on the input buses with a low swing;

at crosspoints between the input buses and output buses,  
(i) generating a plurality of intermediate signals by ~~sensing and~~ amplifying the signals on the input buses in response to a first clock signal and (ii) driving low swing signals on the output buses  
10 at ~~low swing~~ in response to the intermediate signals; and

generating a plurality of output signals by sensing the low swing signals on the output buses.

10  
14. (CURRENTLY AMENDED) A The method as claimed in claim 13, wherein the signals are ~~sensed~~ amplified at the crosspoints by a clocked regenerative ~~amplifier~~ amplification having a gain using a positive feedback.

15. (CURRENTLY AMENDED) A The method as claimed in claim ~~14~~ 13, further comprising controlling timing of the crosspoint switch from a second clock signal such that data in the signals are driven onto the input buses on both edges of the second clock  
5 signal ~~through a timing circuit including a delay, the timing of which varies in a manner similar to timing variations in driver circuits which drive the signals.~~

16. (CURRENTLY AMENDED) A The method as claimed in claim 13, wherein the signals on the input buses and the low swing signals on the output buses are differential signals.

17. (CURRENTLY AMENDED) A The method as claimed in claim ~~16~~ 13, further comprising: ~~wherein the signals on the input buses and~~

precharging a pair of differential lines on each of the  
5 output buses to a mid-swing; and ~~are driven~~

driving the differential lines by push-pull driver circuits in response to the intermediate signals, ~~each of which~~

~~drives a pair of differential lines,~~ one line driven high while the other line is pulled low.

18. (CURRENTLY AMENDED) ~~A~~ The method as claimed in claim 13, further comprising:

amplifying the low swing signals on the output buses in ~~amplifiers, the amplifiers being~~ using clocked regenerative ~~amplifiers~~ amplification having a gain using positive feedback.

19. (CURRENTLY AMENDED) ~~A~~ The method as claimed in claim ~~18~~ 13, wherein the signals on the input buses and the low swing signals on the output buses are differential signals.

20. (CURRENTLY AMENDED) A method of connecting signals from a plurality of input buses to a plurality of output buses comprising:

driving signals on the input buses at both edges of a first clock signal through a ~~plurality of~~ low swing ~~drivers, each low swing driver driving on~~ a pair of differential lines, one line driven high while the other line is pulled low;

at a plurality of crosspoints, (i) sensing the signals from the input buses ~~with amplifiers which amplify signals on the input buses,~~ and (ii) driving low swing signals on the output buses

~~with low swing drivers~~ in response to both the signals and a second clock signal; and

sensing the low swing signals on the output buses in response to a third clock signal ~~with output amplifiers.~~

21. (CURRENTLY AMENDED) A crosspoint switch comprising:

means for driving a plurality of low swing signals on a plurality of input buses;

means for shorting together two lines in each of a plurality of output buses to precharge the lines to a mid-swing voltage; and

a plurality of crosspoint means for ~~sensing and amplifying and~~ (i) amplifying the low swing signals from the input buses and (ii) driving the low swing signals on ~~a plurality of the~~ output buses by pulling up one of the lines and pulling down the other line.

22. (CURRENTLY AMENDED) A The crosspoint switch as claimed in claim 1, wherein the input buses and the output buses are differential data lines, and further comprising a plurality of data-line-to-data-line precharge circuits that share charge between the differential data lines to a midpoint of voltage swing on the differential data lines.



23. (CURRENTLY AMENDED) A The method as claimed in claim  
13 20, wherein the input buses and the output buses are  
differential data lines, and further comprising precharging the  
differential buses through a data-line-to-data-line precharge  
5 circuit that shares charge between the differential data lines to  
a midpoint of voltage swing on the differential data lines.